WE CLAIM:

1. A method of diagnosing a behavioral disorder in a subject comprising

obtaining a sample from said subject; and

analyzing said sample for the presence of a molecular marker of the behavioral disorder,

wherein said molecular marker comprises a genetic location on chromosome 3 or an equivalent location on another chromosome,

wherein a mutation at said location alone or in combination with environmental or other genetic factors is associated with, facilitates the development of, or facilitates the progression of said behavioral disorder.

2. The method of Claim 1, wherein the behavioral disorder is Attention Deficit Hyperactivity Disorder (ADHD).

3. The method of Claim 2, wherein the absence of the mutation is indicative of a low risk of developing ADHD.

4. The method of Claim 2, wherein the genetic location of the molecular marker is associated with the DOCK 3 and/or NHE gene.

5. The method of Claim 1 or 2, wherein the other genetic factors include a mutation in one or more of the HUMAGCGB, KIAA0800 and/or ARP gene.

6. The method of Claim 1, wherein the mutation is selected from the group consisting of a nucleotide substitution, a deletion, an addition and an inversion.

7. The method of Claim 6, wherein the mutation is a chromosome 3 inversion.

8. The method of Claim 7, wherein chromosome 3 comprises p-arm and q-arm breakpoints and the inversion is between the p-arm and q-arm breakpoints.

9. The method of Claim 8, wherein the inversion breakpoints are between band p21.3 and band q21.

10. The method of Claim 9, wherein the molecular marker comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, a nucleotide sequence having at least about 60% similarity to SEQ ID NO:1 or SEQ ID NO:2, a nucleotide sequence capable of hybridizing to SEQ ID NO:1 and/or SEQ ID NO:2 under low stringency conditions, and complementary forms of a nucleotide sequence capable of hybridizing to SEQ ID NO:1 and/or SEQ ID NO:2 under low stringency conditions.

11. The method of Claim 9, the molecular marker comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:3, a nucleotide sequence having at least about 60% similarity to SEQ ID NO:3, a nucleotide sequence capable of hybridizing to SEQ ID NO:3 under low stringency conditions, and complementary forms of a nucleotide sequence capable of hybridizing to SEQ ID NO:3 under low stringency conditions.

12. The method of Claim 3, wherein the molecular marker comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:12, SEQ ID NO:14, a nucleotide sequence having at least about 60% similarity to SEQ ID NO:12 or SEQ ID NO:14, a nucleotide sequence capable of hybridizing to SEQ ID NO:12 and/or SEQ ID NO:14 under low stringency conditions, and complementary forms of nucleotide sequence capable of hybridizing to SEQ ID NO:12 and/or SEQ ID NO:14 under low stringency conditions,

wherein the presence of said molecular marker is indicative of a low risk of developing ADHD.

13. The method of Claim 2, wherein said molecular marker comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:13, SEQ ID NO:15, a nucleotide

sequence having at least about 60% similarity to SEQ ID NO:13 or SEQ ID NO:15, a nucleotide sequence capable of hybridizing to SEQ ID NO:13 or SEQ ID NO:15 under low stringency conditions, and complementary forms of a nucleotide sequence capable of hybridizing to SEQ ID NO:13 or SEQ ID NO:15 under low stringency conditions.

14. A method of diagnosing a behavioral disorder in a subject comprising

obtaining a sample from said subject; and

analyzing said sample for the presence of a molecular marker of the behavioral disorder,

wherein said molecular marker comprises a nucleotide sequence or a modified form thereof, whose amino acid sequence is selected from the group consisting of SEQ ID NO:21, SEQ ID NO:23, an amino acid sequence having at least about 60% similarity to SEQ ID NO:21 or SEQ ID NO:23,

wherein the presence of a modified form of said molecular marker is indicative of a behavioral disorder or the likelihood that a subject may develop a behavioral disorder.

15. The method of Claim 14, wherein the molecular marker further comprises a nucleotide sequence or a modified form thereof, whose amino acid sequence is selected from the group consisting of SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, and an amino acid sequence having at least about 60% similarity to SEQ ID NO:16, SEQ ID NO:17 or SEQ ID NO:18.

16. The method of Claim 14, wherein the amino acid sequence is SEQ ID NO:21.

17. The method of Claim 14, wherein the amino acid sequence is SEQ ID NO:23.

18. The method of Claim 14, wherein the modified form produces an absence of the gene product, an amino acid substitution in the gene product, an amino acid addition in the

gene product, or amino acid deletion in the gene product.

19. The method of Claim 14, wherein the behavioral disorder is ADHD.

20. An isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs:1 to 20, SEQ ID NO:22, a nucleotide sequence having at least about 60% similarity to SEQ ID NOs:1 to 20 or SEQ ID NO:22, a nucleotide sequence capable of hybridizing to SEQ ID NOs:1 to 22 or SEQ ID NO:22 under low stringency conditions, and complementary forms of a nucleotide sequence capable of hybridizing to SEQ ID NOs:1 to 22 or SEQ ID NO:22 under low stringency conditions.

21. An isolated protein comprising an amino acid sequence selected from the group consisting of SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, and an amino acid sequence having at least about 60% similarity to SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18.

22. An isolated antibody to the isolated protein of Claim 21.

23. The isolated antibody of Claim 22, wherein the antibody is a monoclonal antibody.

24. A method for determining the likelihood of a subject having a behavioral disorder comprising

obtaining a sample from said subject;

determining the presence of a mutation in a nucleotide sequence on chromosome 3 in said sample, wherein the nucleotide sequence is selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4 and SEQ ID NO:14.

25. The method of claim 24, wherein the nucleotide sequence comprises more than one member of the group.

26. The method of Claim 24, wherein the behavioral disorder is ADHD.

27. The method of Claim 26, wherein a mutated nucleotide sequence is selected from SEQ ID NO:13 and/or SEQ ID NO:15.

28. A kit for diagnosing a behavioral disorder, said kit in compartmental form comprising a genetic probe capable of detecting the presence of or a mutation in any one of SEQ ID NOs:1 to 20 and/or SEQ ID NO:22.